THREE NEW SPECIES OF HETEROTHECA (ASTERACEAE-ASTEREAE) FROM NORTHERN MEXICO

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Abstract

Three new species of Heterotheca from northern Mexico have been described. Two of these, H. mucronata and H. gypsophila, occur in northeastern Mexico in the regions south of Monterrey and Saltillo. The other species, H. mexicana, is known from a relatively small area some 30 miles west of Ciudad Durango.

The several novelties described below have been under surveillence for over 20 years now and, because of impending floristic treatements in the region concerned, it seems appropriate to make formal their baptism. Two of the taxa, H. mexicana and H. mucronata, have received manuscript names by V. L. Harms (by annotation in 1963) and I have selected sheets examined by him to typify these. Sheets of H. gypsophila were apparently not examined by Harms, most of the specimens having accrued in herbaria since his early studies. Recent exploration of the gypsum outcrops about Cerro Potosi has shown the taxon to be fairly common and readily distinguished from H. mucronata, its closest ally.

I am grateful to my colleague, Dr. M. C. Johnston, for the Latin diagnoses and to Dr. James Henrickson for helpful discussion concerning the several taxa concerned.

Heterotheca mexicana Harms

H. mucronata accedens sed pedunculis longioribus, floribus radiatis paucioribus fimbria squamosa pappi exteriore nulla.

Ascending-erect perennial from stout woody tap-roots, the stems several, procumbent and arising from its crown. Leaves oblanceolate to spathulate, 10-30 mm long, 3-7 mm wide, sessile or with petioles 1-4 mm long, obtuse or rounded at the apex, strigose-sericeous on both surfaces. Heads broadly turbinate to hemispheric borne on elongate, often bracteate, peduncles (2)4-9 cm long. Receptacle 3-4 mm across, somewhat alveolate. Involucre 4-5 seriate, imbricate, 8-10 mm high, about as wide; bracts linear-lanceolate, 3-10 mm long, 0.3-2.0 mm wide, moderately appressed pubescent, the margins ciliate, often scarious and tinged with purple. Ray florets 13-21; ligules yellow, 11-17 mm long, 2-4 mm wide; tube ca. 5 mm long, glabrous. Disk florets numerous, yellow, glabrous, tubular, 6.0-7.5 mm long. Achenes 2.5-3.0 mm long, densely appressed sericeous; pappus of ca. 50

off-white, ciliate, bristles, 5-8 mm long, an outer scaly series absent.

TYPE. MEXICO. Durango: Fields along route 40, ca. 31 mi SW of Durango, 16 Aug 1960, King 378 (holotype TEX).

Additional Specimens Examined. Durango: 30 mi W of Durango, 28 Sep 1962, Cronquist 9546 (TEX); 30 mi SW Durango, 8 Sep 1965, Jackson 7194 (TEX); 7.2 km E of turnoff to El Pino on Highway 40, 24 Aug 1979, Lane 2720 (LL).

A strikingly distinct species with its long-pedunculate heads and pappus which lacks an outer series of scales. It is known only from open pine-oak woodlands about 30 miles southwest of Ciudad Durango.

Heterotheca mucronata Harms, sp. nov.

H. mexicana accedens sed pedunculis brevioribus, floribus radiatis multioribus, squamis pappi exteriore bene evolutis.

Erect or procumbent perennial from slender rhizomes, 10-25 cm high. Stem reddish, covered with a mixed, appressed to spreading, white, soft pubescence, the hairs 0.5-2.5 mm long. Leaves obovate to spathulate, 1.5-5.0 cm long, 0.6-1.4 cm wide, obtuse to rounded at the apex, except for the minute mucro, the upper leaves sessile, the lower leaves with petioles 10-25 mm long, softly white appressed sericeous on both surfaces. Heads few, terminal or axillary on peduncles mostly 1-3 cm long. Involucre hemispheric, 4-5 seriate, imbricate, 9-10 mm high, up to 20 mm across when pressed; bracts narrowly lanceolate, pubescent throughout with long, appressed to spreading white, soft trichomes, those of the inner series with scarious margins and often tinged with purple. Receptacle convex, 5-7 mm across, somewhat alveolate. Ray florets 21-34, pistillate and fertile; ligules yellow, 8-10 mm long. 1.5-2.5 mm wide; tube 4-5 mm long, sparsely pubescent. Disk florets numerous, yellow; corollas tubular, 5-6 mm long, glabrous or nearly so. Achenes 1.5-2.0 mm long, appressed pubescent; pappus biseriate, the outer of 20-30 slender scales ca. 1 mm long, the inner of ca. 35, tawny or reddish, ciliate bristles 5-6 mm long. Chromosome number 2 n = 18 pairs.

TYPE: MEXICO. Nuevo Leon: Puerto de Santa Ana, ca. 15 mi SW Galeana, "common on an unwooded slope". 28 Jun 1934, C. H. & M. T. Mueller 934 (holotype TEX; isotype AA).

Additional Specimens Examined: COAHUILA: ca. 6 mi E Jaime, 25°21' N x 100°32 W, 15 May 1977, Henrickson et al. 16137 (TEX). NUEVO LEON: 8.5 mi below Iturbide, 24°45' N x 100°46', 27 Oct 1982, Grimes et al. 2340 (TEX); Sierra La Marta, 3360 m, 5 Jul

1981, Hinton et al. 18307 (TEX); Santa Rosa Canyon, W of Linares, 22 Apr 1946, M. C. Johnston s.n. (TEX); 25 m W of Linares, 8 Sep 1962, Turner & Powell 1058 (TEX); 30 km E Doctor Arroyo, Jul 1977, Wells & Nesom 389 (LL); 22 mi W of Linares, 16 Mar 1976, Whalen 316, 318 (LL). TAMAULIPAS: ca. San Jose, 4600 ft, Sierra de San Carlos, 19 Jul 1930, Bartlett 10492 (LL). ZACATECAS: Sierra Astillero, ca. 24°34' x 101°04, 2 Jul 1973, Johnston et al. 11571 (TEX).

As noted above, Heterotheca mucronata occurs over a relatively broad region of pine-oak forests from 1500 to 3400 meters elevation. I have observed it repeatedly on limestone bluffs and ledges on the main road between Linares and Roberto Junction where it is especially abundant about the engraved highway mural 25 miles west of Linares. So far as known, it does not occur with H. gypsophila, preferring rocky or relatively shallow calcareous soils. No doubt the two taxa are closely related and a more conservative rendering might treat them as conspecific; I prefer to emphasize the edaphic differences and the fact that the several morphological characters which mark H. gypsophila are consistently correlated with gypseous outcrops.

Heterotheca gypsophila B. L. Turner, sp. nov.

A H. mexicana pubescentibus uniformibus leucosericeis, foliis parvioribus crassioribus, floribus radiatis paucioribus, pappo minus fulvo, distributione solo gypseo restrica differt.

Erect rhizomatous perennial, 10-23 cm high. Stems several from the base, erect to procumbent, silvery-white pubescent. Leaves oblanceolate to spathulate, 1-3 cm long, 0.4-0.9 cm wide, shortly apiculate at the apex. Heads usually 1-4, borne terminal on peduncles 1-5 cm long (occasionally axillary and up to 7 cm long from lower leaves). Involucre broadly turbinate to campanulate, 8-10 mm high, 10-15 mm wide (when pressed); bracts 3-4 seriate, imbricate, linear-subulate, 3-10 mm long, ca. 0.7 mm wide, densely pubescent with appressed white hairs. Ray florets fertile, yellow, 13-21; ligules 10-14 mm long, 1.5-2.0 mm wide; tube ca. 5 mm long, glabrous. Disk florets numerous, 5-lobed, tubular, glabrous, 5-6 mm long, ca. 0.5 mm wide, the tube ca. 2 mm long, the limb 3-4 mm long. Achenes ca. 2.5 mm long, white sericeous throughout; pappus double, the outer series of slender scales, 0.5-1.0 mm long, the inner series of numerous slender somewhat tawny bristles 6-7 mm long.

Holotype: MEXICO. Nuevo Leon: "On bank of gypsum arroyo in pinyon forest 4 miles north of Pablillo", 21 Jul 1958, D. S. Correll & I. M. Johnston 19919 (LL).

Additional collections examined: NUEVO LEON. Municipality Galeana: El Carrizo, 27 Jun 1983, Hinton et al. 18471 (TEX);

Pablillo, 28 Jun 1983, Hinton et al. 18476 (TEX); 5 km S Pablillo, 18 Oct 1983, Hinton et al. 18634 (TEX); Pablillo, S of Pablillo, 26 Jun 1934, Pennell 16975 (US).

So far as known Heterotheca gypsophila is confined to gypsum outcrops. However, it is clearly related to the surrounding calciphile, H. mucronata, and probably was selected out of that populational matrix in relatively recent times. A more conservative treatment might treat these two taxa as but varietally distinct, much as I accorded a similar taxon-pair from this same region, Helianthella mexicana var mexicana and H. m. var gypsophila. (Turner, 1977). In the latter pair, however, imtermediates, and presumably gene flow, occur between the taxa, hence the varietal disposition. No such intermediates are known between H. mucronata and H. gypsophila and, combined with the constant morphology for the five or more separate collections assembled to date, suggest that specific treatment is appropriate.

Literature Cited

Turner, B. L. 1977. A gypsophilic species of Helianthella (Asteraceae-Heliantheae) from northwestern Mexico. Southwestern Naturalist 22: 553-554.

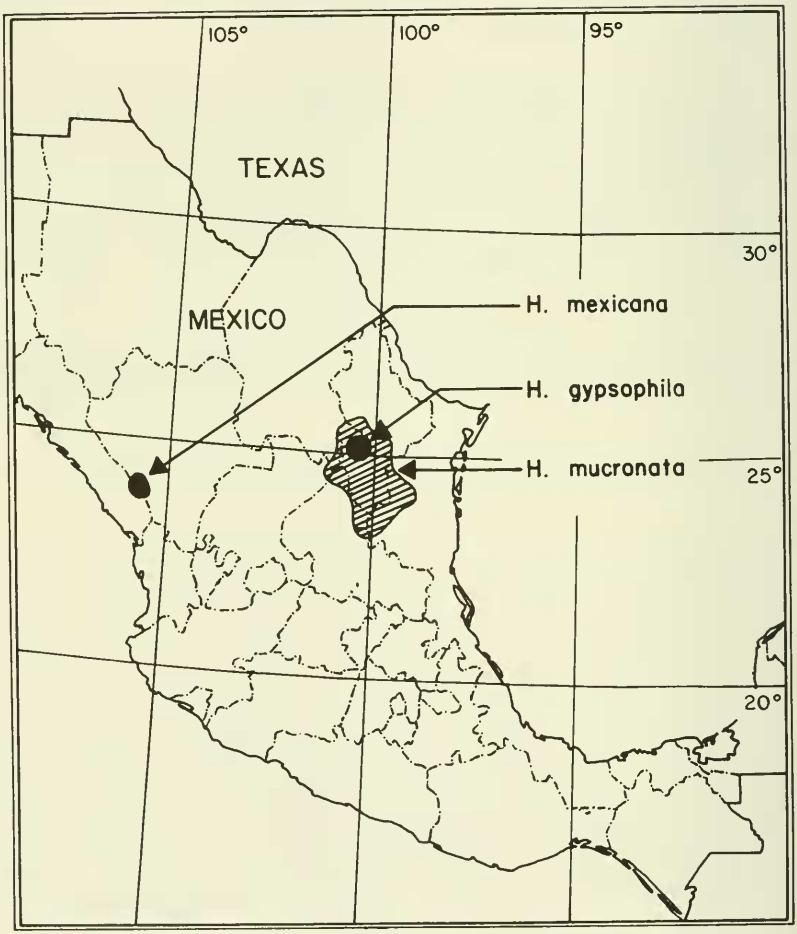

Fig. 1. Distribution of Heterotheca species.